



### Gas extraction sites

#### Benefits

- Aids balancing of gas field
- Real time adjustments can be made
- Maximise power output from site
- Easy to read
- No need for self-certification of anemometer
- Maximise revenue from CH<sub>4</sub>

#### Applications

- Landfill gas field optimisation
- Landfill gas energy calculation
- Flare / engine output estimation

#### Features

- Certified: ATEX, IECEx, CSA, MCERTS and UKAS calibration (ISO17025)
- Measures % CH<sub>4</sub>, CO<sub>2</sub>, O<sub>2</sub>
- Records static and differential pressure
- Choice of user settings and simple gas reading function
- Calculates gas flow (m<sup>3</sup>/h) and calorific value (KW or BTU) (external flow device and Gas Analyser Manager software required)
- CH<sub>4</sub> and CO<sub>2</sub> accuracy ±0.5% after calibration
- Modular and upgradeable
- 3 year warranty
- Robust design for market leading reliability
- Event log
- Datalogging and profiling function

#### Options (available at purchase or later)

- H<sub>2</sub> compensated CO
- Choice of additional gases including H<sub>2</sub>S to 10,000ppm
- GPS / field navigator
- Gas Analyser Manager software for data download
- External gas flow devices: anemometer (ATEX) / Pitot tubes



## Technical specifications

### GEM5000

#### POWER SUPPLY

Battery type	Rechargeable nickel metal hydride battery pack (not user replaceable)
Battery life	Typical use 8 hours from fully charged
Battery charger	Separate intelligent 3A battery charger powered from mains supply (100-240V)
Charge time	Approximately 4 hours from complete discharge

#### GAS RANGES

Gases measured	CO <sub>2</sub> and CH <sub>4</sub>	By dual wavelength infrared sensor with reference channel		
	O <sub>2</sub>	By internal electrochemical sensor		
	CO (H <sub>2</sub> compensated), H <sub>2</sub> S, NH <sub>3</sub> and H <sub>2</sub> (optional)	By internal electrochemical sensor		
	A full range of internal gas cells can be specified at the time of manufacture.			
Standard gas cells	Cell	Range	Typical accuracy (range : accuracy)	Typical accuracy (range : accuracy)
	CH <sub>4</sub>	0-100%	0-70% : ±0.5% (vol)	70-100% : ±1.5% (vol)
	CO <sub>2</sub>	0-100%	0-60% : ±0.5% (vol)	60-100% : ±1.5% (vol)
	O <sub>2</sub>	0-25%	0-25% : ±1% (vol)	
Optional gas cells	Cell	Range	Typical accuracy (range : accuracy)	
	CO	0-500ppm	± 2.0% FS	
	CO	0-1,000ppm	± 2.0% FS	
	CO	0-2,000ppm	± 2.0% FS	
	CO (H <sub>2</sub> ) <sup>+</sup>	0-2,000ppm	± 1.0% FS	
	H <sub>2</sub> S	0-50ppm	± 1.5% FS	
	H <sub>2</sub> S	0-200ppm	± 2.0% FS	
	H <sub>2</sub> S	0-500ppm	± 2.0% FS	
	H <sub>2</sub> S	0-1,000ppm	± 2.0% FS	
	H <sub>2</sub> S	0-5,000ppm	± 2.0% FS	
	H <sub>2</sub> S	0-10,000ppm	± 5.0% FS	
	NH <sub>3</sub>	0-1,000ppm	± 10.0% FS	
H <sub>2</sub>	0-1,000ppm	± 2.5% FS		
Typical accuracies	All typical accuracies quoted are after calibration			
Response time, T90	CH <sub>4</sub>	≤10 seconds		
	CO <sub>2</sub>	≤10 seconds		
	O <sub>2</sub>	≤20 seconds		
	CO	≤30 seconds		
	H <sub>2</sub> S	≤30 seconds		
	NH <sub>3</sub>	≤90 seconds		
	H <sub>2</sub>	≤30 seconds		
	+ Hydrogen compensated carbon monoxide measurement	Compensated for interference from up to 2,000ppm hydrogen. Hydrogen cross gas effect on carbon monoxide approximately 1%		

## Technical specifications

### GEM5000 cont'd.

#### PUMP

Flow	550 ml/min typically
Flow fail	-200 mbar vacuum - user settable
Maximum vacuum restart	-375 mbar approximately with flow rate of approximately 80ml/ min

#### FACILITIES

Temperature measurement	-10°C to +75°C with optional probe
Temperature accuracy	±0.5°C with optional probe
Flow measurement	Via Pitot tube, orifice plate or anemometer
Energy measurement	Calculated using gas concentrations, flow, and temperature readings
Alarm	User selectable alarms
Communications	Via USB lead or wireless Bluetooth *
Relative pressure measurement	±500 mbar
Relative pressure accuracy	±4 mbar typically (should be zeroed before reading) to ±15 mbar max
Barometric pressure measurement	500 to 1500 mbar, ±5 mbar accuracy
GPS sensor	Location and positioning
Available Memory	2,000 IDs *, 4000 readings, 2,000 events *

\* Gas Analyser Manager required

#### ENVIRONMENT CONDITIONS

Operating temperature range	-10°C to +50°C
Atmospheric pressure range	700 to 1200 mbar
Relative humidity	0-95% non condensing
Case seal	IP65

#### PHYSICAL

Weight	1.6 kilograms
Size	L 220mm, W 155mm, D 60mm
Case material	ABS/ polypropylene with rubber over-moulding
Keys	Alpha-numeric keypad wth "tactile" membrane
Display	Ultra-clear high resolution 4.3" full colour TFT
Connections	Colour coded gas inlet, outlet and pressure ports. Waterproof USB port, anemometer and charger/ temperature probe connections
Gas sample filters	External user changeable 2.0µm ptfе water traps

GEM5000 cont'd.

CERTIFICATION RATING

ATEX	II 2G Ex ib IIA T1 Gb (Ta = -10°C to +50°C)
MCERTS	MC/130239
ISO17025	Calibration to UKAS certificate number 4533
CSA	Ex ib IIA T1 (Ta= -10°C to +50°C) (Canada), AEx ib IIA T1 (Ta= -10°C to +50°C) (USA)

**Important Note:** The information in this document is correct at the time of generation. We do, however, reserve the right to change the specification without prior notice as a result of continuing development.

